GRINBERG, A.A.; SHAGISULTANOVA, G.A.; GEL'FMAN, M.I.

Instability constants of platenum complexes. IEv. AN SSSR. Otd.khim. nauk no.4:585-596 Ap 163. (MIRA 16:3)

1. Leningraliskiy tekhnologicheskiy institut im. Lensoveta.
(Platinum compounds)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R000516830

GRINEERG, A.A.; PETRZHAK, G.I.; Prinimal uchastive TEVTEYEV, L.I.

Additional data on the solubility of tetravalent uranium oxalate. Radiokhimiia 5 no.3:319-329 '63. (MIRA 16:10)

(Uranyl oxalate) (Solubility)

VARSHAVSKIY, Yo.S.; IN'KOVA, Ye.N.; GRIEBERS, A.A.

Infrared spectra and the structure of the glywire derivatives of bivalent platinum. Zhur. neorg. khim. 3 no.12rz659-2667 is 163.

/MIRA 17:9)

"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683

(MIRA 16:10)

GRINBERG, A.A.; GIL'DENGERSHEL', Kh.I.; PANTELEYEVA, Ye.F. Acidic-basic properties of geometrically isomeric ounds. Zhur. neorg. khim. 8 no.10:2226-2231 0 '63.

(Complex compounds)

(Isomerism)

GRINBERG, A.A., akademik; ADRIANOVA, O.N.; YUAN' KAN [Yuan K'ang]

Proof of the configuration of cis-trans isomeric compounds
[PtGl₂(MH₃)₂]Cl₂. Dokl. AN SSSR 149 no.4:842-845 Ap '63.
(MIRA 16:3)

1. Institut obshchey i neorganicheskoy khimii im. N.S.Kurnakova AN SSSR i Leningradskiy tekhnologicheskiy institut im. Lensoveta. (Platinum compounds) (Glycols) (Isomerism)

GRINBERG, A.A., akademik

Relation between the stability and reactivity of complex compounds. Dokl. AN SSSM 149 no.5:1074-1077 Ap '63.

(MIRA 16:5)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta. (Complex compounds)

GRINBERG, A.A., akademik; GEL'FMAN, M.I.

Stability of complex compounds of bivalent platinum of the mondamine and triamine types. Dokl. AN SSSR 150 no.2:305-308 My 163. (MIRA 16:5)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta.
(Platinum compounds) (Amino group)

GRINBERG, A.A., akademik; DOBROBORSKAYA, A.I.

Difference of reactions of geometrically isomeric compounds [PtA₂X₄]. Dokl. AN SSSR 152 no.3:615-616 S '63. (MIRA 16:12)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta.

"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683

CRINBERG, A.A., akademik; GEL'FMAN, M.I.

Stability of complex platinous compounds of the discidediamine type. Dokl. AN SSSR 149'no.6:1328-1331 Ap '63. (MIRA 16:7) (Platinum compounds) (Amines)

(MIRA 16:6)

GRINBERG, A.A., akademik; IN'KOVA, Ye.N.; VARSHAVSKIY, Yu.S. New modification of cis-platodiglycine. Dokl. AN SSSR 150 no.41805-808 Je 163.

> (Platinum compounds) (Glycine)

GRINBERG, A.A., akademik; POSTNIKOVA, Ye.S.

Instability constants of geometrically isomeric platodiamines.

Dokl. AN SSSR 153 no.2:340-341 N '63. (MIRA 16:12)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta.

GRINBERG, A.A., akademik; KISELEVA, N.V.; GEL'FMAN, M.I.

Instability constants of palladium complexes, Compounds of the K₂[PdX₄] type. Dokl. AN SSSR 153 no.6:1327-1329 D '63.

(MIRA 17:1)

GRINEERG, A. A., Leningrad

"Glykokoll-verbindungen des vierwertigen platins."

report submitted for 8th Intl Confon Coordination Chemistry, Vienna, 7-11 Sep 64.

"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683

GRINBERG, Aleksandr Abramovich

"On the instability constants _f mixed complexes of platinum."

report submitted for Symp on Coordination Chemistry, Tihany, Hungary, 14-17 Sep 64.

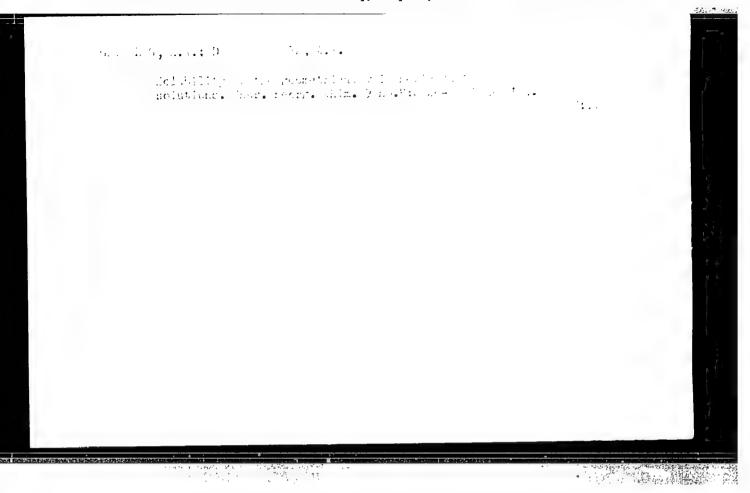
"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683

GRINEERG, A.A.; KOLOBOV, N.P.

Ratio of tetrammines of the composition [Pt(NH₃)₄Cl₂](NO₃)₂ to cation exchangers of the KU-2 type. Zhur. neorg. khim.
9 no.2:491-494 F*64.

(MIRA 17:2)



GRINBERG, A.A., akademik; YUAN' KAM [Yüan K'ang]

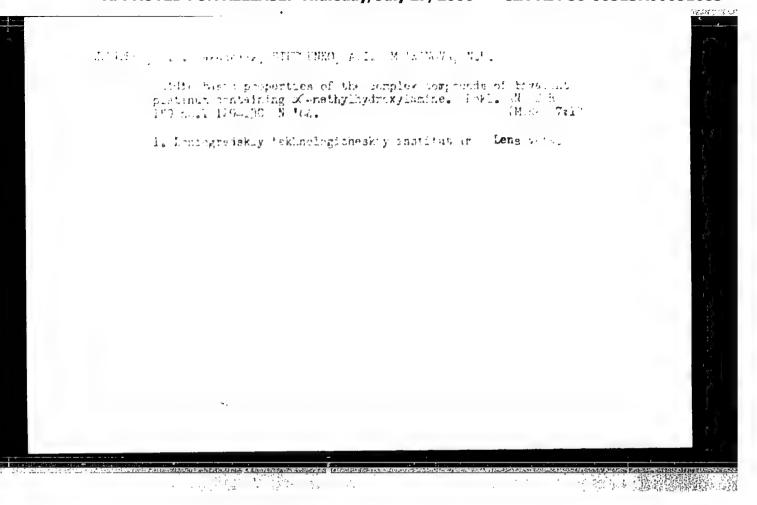
Triglycocholates of tetravalent platinum. Dokl. AN SSSR 154 no.1: 136-139 Ja'64. (MIRA 17:2)

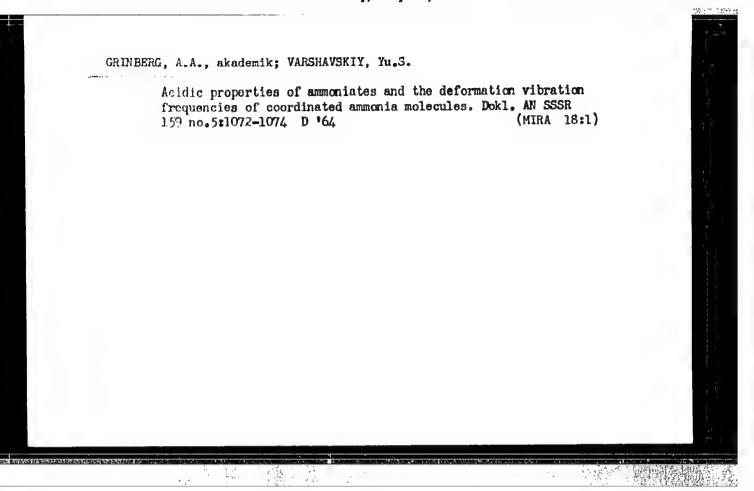
1. Leningradskiy tekhnologicheskiy institut im. Lensoveta.

GRINBERG, A.A.

Explanation of the saturation of the drift velocity of current carriers in piezoelectric semiconductors. Dokl. AN SSSR 155 no.6:1293 Ap '64. (MIRA 17:4)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR. Predstavleno akademikom B.P.Konstantinovym.

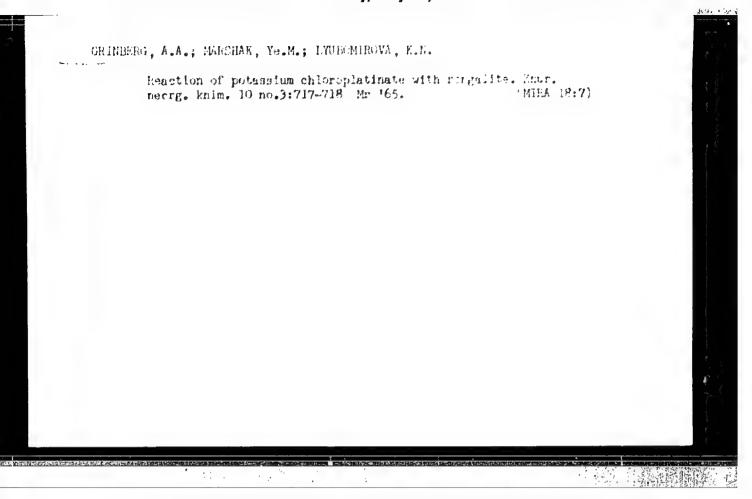


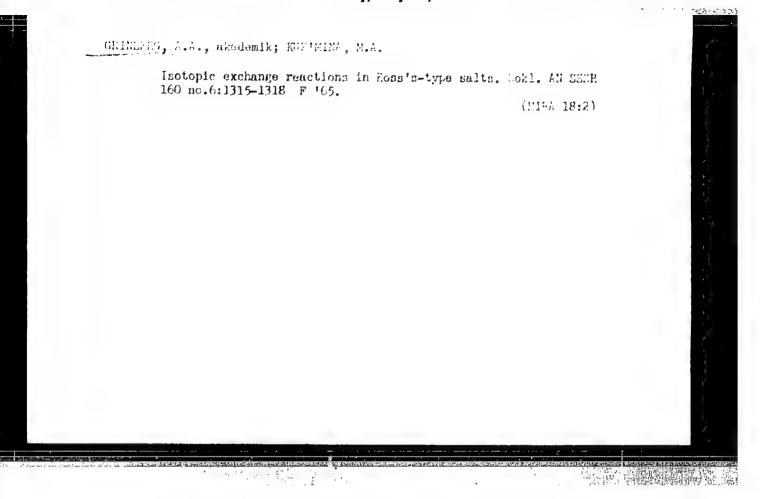


GRINEERG, A.A. akademik; YUAN' KAN [Yuan K'ang]; VARSHAVSKII, Yu.S.

New geometric isomers [Pt2Gl2Cl2]. Dokl. AN SSSR 154
no.2:375-378 Ja*64. (MIRA 17:2)

L 65125-65 ENT(m)/EPF(c)/ENP(j) RM ACCESSION NR: AP5021593 44.55 UR/0286/65/000/013/c068/0068	end objection in the
AUTHORS: Grinberg, A. A.; Bebikh, G. F.; Makarova, I. H.; Shapiro, A. L.;	
TITLE: A method for protecting rubbers. Class 39, No. 172482 16 SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 13, 1965, 68	A Comment
TOPIC TAGS: rubber, rubber chemical, organic chemistry, oxidation, fatigue, cracking	
ABSTRACT: This Author Certificate presents a method for protecting rubbers made of natural and synthetic materials against nitrogen cracking, thermal oxidation, is and fatigue by introducing paraphenylenediamine derivatives into the rubber mix-	
ture of To increase the assortment of stabilizers \$4-nethoxy-4'-isopropylamino-diphenylamines are used as the paraphenylenediamine derivative. ASSOCIATION: Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy (Scientific-Research Institute of Rubber and Latex Products)	
SUBMITTED: 300ct64 ENGL: 00 SUB CODE:OC,MT NO REF SOV: 000 OTHER: 000	
Card 1/1 131	





Ghinband, A.A., akademik; GLI Third, M. . .

Separation of isomeric diamines of bivalent platinum arrief products of their reaction with throughs, field. All J. J. Li 10.3 502-602 Mr *65.

BEBIKH, G.F.; GRIBBERG, A.A.

Synthesis of N-substituted arountic nuines, Dokl. AN SSCR 16: no.6:1333-1335 Ap *65. (MIHA 18:5)

1. Moskovskiy gosudarstvennyy universitet im. H.V.Lomonosova i Nauchno-issledovatel'skiy institut rezinovykh i lateksnykh izdeliy. Submitted October 1, 1964.

GRINBERG, A.A., akademik, VARSHAVSKIY, Yu.S.

Coordination sensitivity of the frequency of wagging vibrations of the amino group in the spectra of cyclic ethylenediamine complexes. Dokl. AN SSSR 163 no.31646-649 Jl 165. (MIRA 18:7)

1. Leningradskiy tekhnologicheskiy institut im. Lensoveta.

GRINBERG, A.A.; KOLOBOV, N.P.

Interaction between triammines [Pt(NH₃Cl)₃]Cl and cation exchanger KU-2. Zhur.neorg.khim. ll no.l:39-42 Ja *66.

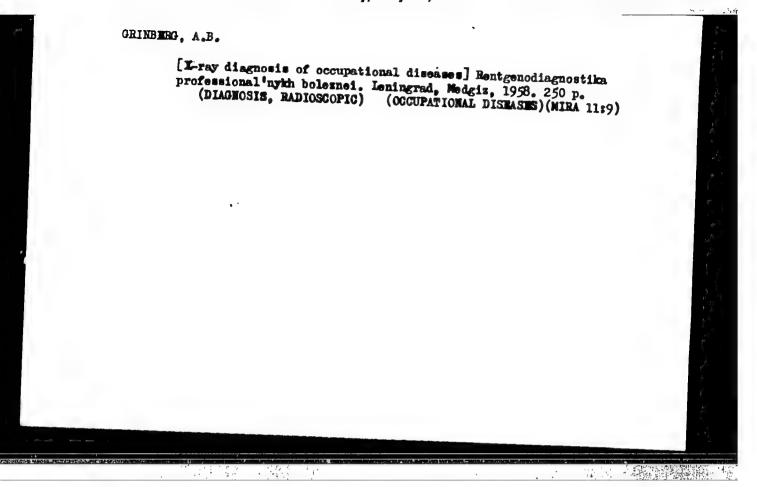
(MRA 19:1)

1. Submitted April 6, 1965.

EWT(m)/EWP(J)/T ACC NR IJP(c) RM AP6009488 UR/0020/66/167/001/0099/0101 AUTHOR: Grinberg, A.A. (Academician); Babitskiy, B.D.; Bezhan, I.P.; Varshavskiy, Yu.S.; Gel'fman, M.I.; Kiseleva, N.V.; Kormer, V.A.; Smolen-8 23 ORG: All-Union Scientific Research Institute for Synthetic Rubber im. S.V. Lebedev (Vsesoyuzn y nauchno-issledovatel skiy institut sinteticheskogo au huka); Institute of General and Inorganic Chemistry im. N.S. Kurnakov of the AN SSSR(Institut obshchey i neorganicheskoy khimil AN TITLE: The effect of the composition of rhodium(III) complexes on their catalytic activity in the process of stereospecific polymerization of butadiene-1,3 in an aqueous medium SOURCE: AN SSSR. Doklady, v.167, no.1, 1966, 99-101 TOPIC TAGS: rhodium compound, polymerization catalyst, butadiene, ABSTRACT: The complexes to be investigated, synthesized by known methods, were analyzed for their rhodium and halide content. The polymerization was carried out by methods described in a previous article. A table shows results of using fifteen different rhodium complexes as catalysts in the polymerization of butadiene in an aqueous emulsion at 50 and 70b. It follows from these results that the gradual replacement UDO: 66.095.264:678.672:661.897

of chlorine ions by ammonia molecules leads to a decrease in the polymerization rate. The catalytic activity of bromine derivatives also inner sphere of the complex. Comparison of the catalytic effect of the halides of rhodium shows that the chlorides and the bromides of rhodium loadide is inactive at 500, while in its presence at 700 there takes ence of three ammonia molecules in the finer sphere of the todide the show that the stereospecific polymerization proceeds by a coordination-ionic mechanism. Results also of the Rh2+ complexes studied leads to the formation of trans-1,4-polyhas: 1 figure and 1 table.

SUB CODE: 07/ SUBM DATE: 12Jul65/ ORIG REF: 003/ OTH REF: 005



(MIRA 14:11)

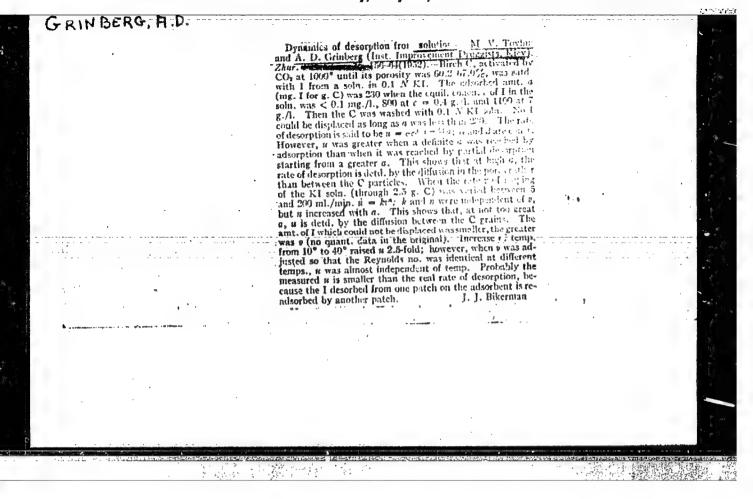
ALMAZOV, A.M.[Almazov, O.M.]; GRINBERG, A.D. [Grinberg, H.D.]

Effect of river discharge on the salinity and the ratio of ion concentrations in waters of the northwestern part of the Black Sea.

Nauk.zap.Od.biol.sta. no.2:55-67 160. (BLACK SEA-SALINITY)

"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683



GRINBERG, 11.D

USSR/Chemistry - Physical chemistry

Card 1/1

Pub. 147 - 13/26

Authors

Grinberg, A. D.; Strazhesko, D. N.; and Tovbin, M. V.

Title

Reasons for the retentiveness of porous adsorbents

Periodical

Zhur. fiz. khim. 28/1, 81-86, Jan 1954

Abstract

The kinetics of iodine desorption from activated carbon by means of a CCl, stream at small adsorption values (lower retentiveness of the carbon) was investigated by the marked atom method. The rate of desorption at such values was determined by diffusion factors, which indicates that the retentivity of porous adsorbents is due not to the special state of the substance adsorbed at small surface charges but to the migration conditions of the adsorbed substance from the micropores to the surface of the adsorbent. The kinetics of isotopic exchange between the iodine adsorbed by the carbon and the iodine dissolved in CCl4 was investigated and it was found that this exchange takes place as result of the adsorption and desorption processes. Seven references: 6-USSR and 1-English (1923-1952). Tables; graphs.

Institution:

Acad. of Sc. Ukr-SSR, The L. V. Pisarzhevskiy Institute of Physical Chemistry

Submitted March 7, 1953

"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683

GRINABERY, a. K.

USSR/Chemistry - Dynamics

Card 1/1

Pub. 147 - 7/25

Authors

t Tovbin, M. V., and Grinberg, A. D.

Title

t The dynamics of desorption from porous adsorbents

Periodical

Language Property Property 1954 | Zhur, fiz. khim. 28/10, 1755-1764, Oct 1954

Abstract

Applying the method of quasi-stationary concentrations the authors derived equations for the rate of desorption of a substance from a porous adsorbent. The accuracy of these equations was confirmed by results obtained in studying the kinetics of iodine desorption from a layer of activated carbon one grain in thickness. The effect of numerous factors on the dynamics of the iodine desorption process, from activated carbon by means of the flow of the solvent, was investigated. The effect of various factors on the retentivity of the carbon in relation to the iodine is explained. It is shown that the retentivity of the adsorbent can be affected by the change in porosity of adsorbent and by adding surface active substances. Eleven USSR references (1929-1954). Tables; graphs; diagram.

Institution

The Auto-Highway Institute, Kiev

Submitted

February 21, 1953

TOYBIN, M.V.; GRINBERG, A.D. [Hrinberh, A.D.]

Dynamics of iodine desorption from activated coal. Nauk.zap.Kyiv.un.
16 no.15:39-43 '57. (MIRA 11:11)

(Iodine) (Sorption) (Carbon, Activated)

GRINBERG, A. G.

Grinberg, A. G. - "Changes of vegetative skin innervation in certain surgical diseases of the internal organs," Report 1, "Electro-conductivity of skin in chronic appendicitis," In the symposium: V. N. Shamov, Kiev, 1949, p. 19-24

SO: U-4355, 14 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 15, 1949)

GRINBERG, A. G. Docent

"Iontophoresis in Atrophies of the Optic Nerve," Vest. Oftalmol., 28, No.3, 1949.

Physiotherapeutics Dept., Kasan Med. Inst.

GRINBERG, A.G.

Experience with therapy of chronic osteomyelitis caused by gunshot wounds in veterans of the Second World War. Ortop.travm. i protez. no.5:26-29 8-0 155.

1. Iz Ehar'kovskogo oblastnogo gospitalya (nach. - A.I.Petrov) dlia invalidov Otechestvennoy Voyny.

(OSTROMYELITIS, etiology and pathogenesis

gunshot inj., ther. in veterans of World War II in Russia)

(VETERANS, diseases

osteomyelitis caused by gunshot in World War II, ther. in Russia)

GRINBERG, A.I.

Tertian malaria with prolonged incubation in Kishenev. Hed. paras. i paras. bol. no.3:216-219 J1-8 '54. (MIRA 8:2)

1. Is Kishenevskoy gorodskoy protivomalyariynoy stantsii. (MALARIA, tertian, epidemiol. in Russia, malaria with prolonged incubation)

GRINBERG, A.I.

Incidence of quartan malaria in Kishinev. Med.paraz.i paraz.bol. no.5:580-584 161. (MIRA 14:10)

1. Iz Kishinevskoy gorodskoy sanitarno-epidemiologicheskoy stantsii.

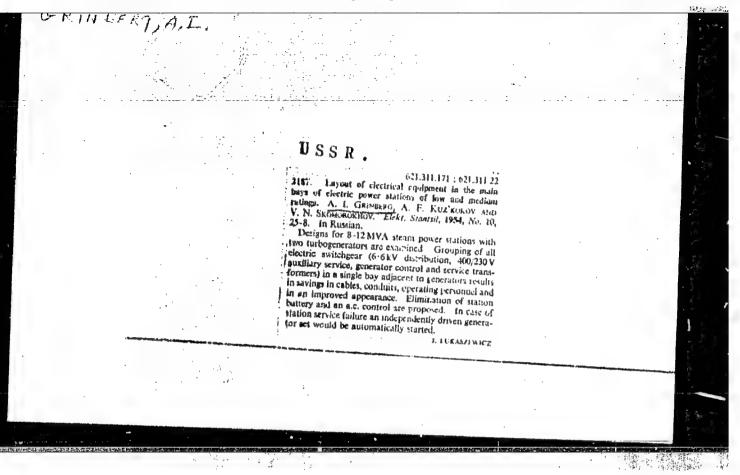
(KISHINEV--MALARIA)

GRINBERG, A. I.

Electric Relays

Simplifying the design of relay panels. Elek, sta. 23 no. 3, 1952. Inzh

SO: Monthly List of Russian Accessions, Library of Congress, July 1953, Uncl.



GRINBERG, A.I.

Determination of alcohol by the method of salting out in legal chemical investigations of biological material. Sud.-mec.eks-pert. 2 no.2:30-34 Ap-Je 159. (MIRA 13:6)

1. Laboratoriya Leningradskogo gorodskogo byuro sudebnomeditsinskoy ekspertisy (nachal'nik - kand.med.nauk M.A. Dal'). (ALCOHOL--AMALYSIS) (GHEMISTRY, LEGAL)

KALITA, Nikolay Yakovlevich; GRINBERG, A.I., retsenzent; BARABASH, M.M., retsenzent; ZHIGALOV, A.N., dotsent, kand. ekon. nauk, Tetsenzent; DOSMKOV, V.Ye., prof. spets. red.; NOZDRINA, V.A., red.; ZARSHCHIKOVA, L.M., tekhm. red.

[Establishing work morms in the meat and dairy industries]
Tekhnicheskoe mormirovanie truda v miasmoi i molochnoi promyshlennosti. Moskva, Pishchepromisdat, 1962. 294 p.
(MIRA 16:3)

1. Starshiy imshemer Normativno-issledovatel'skoy laboratorii po trudu Kiyevskogo myasokombimata (for Barabash). 2. Nachal'-nik otdela truda i zarabotnoy platy Kiyevskogo myasokombimata (for Grinberg).

(Meat industry--Production standards)
(Dairy industry--Production standards)

GRINBERG, Abram Isakovich, PHITRIYEVA, N.M., red.; POGOSKINA, M.V., tekhn. red.

[Helminthiasis in children] Gel'mintozy u detei. Moskva, Medgiz, 1961. 182 p. (MIRA 15:2) (WORMS, INTESTINAL AND PARASITIC)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R000516830

SIMKHOVICH, Ye.I.; GRINBERG, A.I.; RAYTFEL'D, I.M.

Treatment of ascariasis by the method of single-dose piperasine

Treatment of ascarlasis by the method of single-dose piperasine adipinate administration in the Moldavian S.S.R. Med.paraz.i paraz.bol. no.31294-295 62. (MIRA 15:9) (PIPERAZINE) (MOLDAVIA-ASCARIDS AND ASCARIASIS) (ADIPID ACID)

GRINBERG, A.I.; BOKARIUS, V.N.

Review of V.A.Baliakin's book "Toxicology and expertise of alcoholic intoxication." By A.I.Grinberg, V.N.Bokastast Sud. ekspert. 6 no.3:59-61 J1-S'63. (MIRA 16:10) (MEDICAL JURISPRUDENCE) (ALCOHOLISM) (BALIAKIN, V.A.)

KOLYANDR, L.YA.; GRINBERG, A.M.; KOLTUN, R.M.; ZASLAVSKAYA, T.I.

Determination of constants of pure o-xylene and the development of indexes for characterization of commercial product. Zhur. Priklad. Khim. 26,438-42 153.

(CA 47 no.19:9703 153)

1. Kharkov Coke-Chem. Plant.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R000516830

GRINDERG, A.I.

Calculation of the quantity of ethyl alchehol and its concentration in the blood. Sud.-med.ekspert. 3 no.1:40-45 Ja-Mr *60.

(MIRA 13:5)

1. Leningradskoye gorodskoye byuro sudebnomeditsinskoy ekspertisy (nachal'nik M.A. Dal').

(ALCOHOL IN THE BODY)

AUTHOR:

Grinberg. A.M. (Ukhin).

162

TITLE:

Dephenolising coke oven effluents by steaming. (Obesfenolivaniye stochnykh vod koksokhimicheskikh

zavodov parovym metodom).

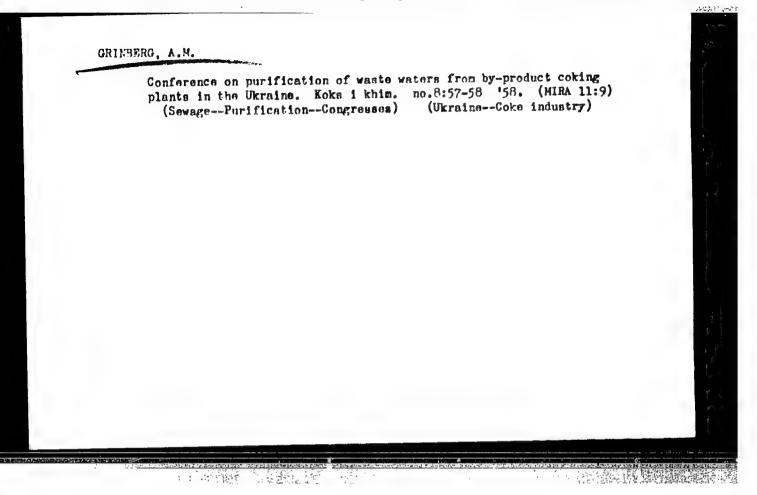
Inter- Coal Cherry ration mot.

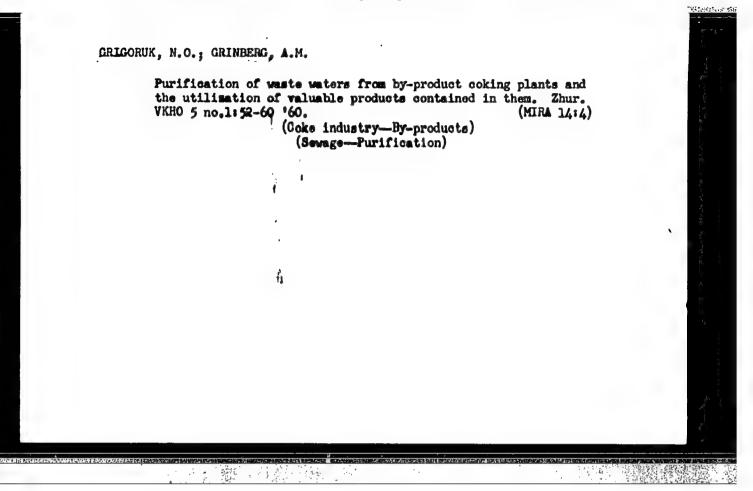
PERIODICAL: "Koks i Khimiya" (Coke and Chemistry), 1957, No.3,

pp. 34-37 (U.S.S.R.)

ABSTRACT:

Equilibrium concentrations of phenols in steam over alkali-phenolate solutions, the influence of the presence of ammonia on the equilibrium concentrations of phenols in steam over alkali-phenolate solutions and the efficiency of removal of phenols with steam in the presence of ammonia were investigated. It was established that the dephenolising process is complicated by the hydrolysis which takes place during the removal of phenols from steam with alkali-phenolate solutions. The presence of volatile ammonia in the effluent causes a decrease in the efficiency of both desorbing and absorbing parts of the scrubber, therefore, the fullest possible removal of ammonia in the evaporating part of the ammonia column is necessary. For the absorption of phenols from steam a multi-stage apparatus is more expedient. In order to improve the efficiency of operation of existing dephenolising plants an improvement in the design of spraying equipment and the use of metallic fillers is considered necessary. There are 3 tables, 4 figures and 4 references, two of which are Russian.





Interfactory school for the operators of dephenolizing plants.

Koks 1 khim. no.5:50-52 '60. (MIMA 13'?)

1. Ukrainskiy uglekhimicheskiy institut.
(Coke industry—Study and teaching)
(Phenols)

KEOBOTOVA, N.M., ekskursovod; TROITSKAYA, N.K.; GEINBELG, A.M.; ECMINSKAYA, G.B.; SHUTOV, T.I.

Exhibitions and displays of special items. Inform. biul. VDNKH no.10:9-11 *63. (MIRA 18:5)

1. Pazdel "Priborostroyeniye i sredstva avtomatizatsii"
pavil'ona "Mashinostroyeniye" na Vystavke dostizheniy narodnogo
khozyaystva (for Khobotova). 2. Glavnyy inzh.-metodist pavil'ona
"Mashinostroyeniye" na Vystavke dostizheniy narodnogo khozynystva
(for Troitskaya). 3. Glavnyy metodist razdela "Geologiya" ob"yedinennogo pavil'ona "Toplivnaya promyshlennosti' i geologiya"
na Vystavke dostizheniy narodnogo khozyaystva SSSR (for Dominskaya).
4. Direktor pavil'ona "Molochnaya promyshlennosi'" na Vystavke
dostizheniy narodnogo khozyaystva SSSR (for Shutov).

VINAROV, I.V.; GRINBERG, A.N.

Isotherms of ion exchange sorption of zirconium and hafnium on a KU-2 cation exchanger. Ukr. khim. zhur. 29 no.10:1013-1015 63. (MIRA 17:1)

1. Institut obshchey i neorganicheskoy khimii AN UkrSSR, laboratorii v Odesse.

ACCESSION NR: AP4033697

8/0073/64/030/004/0359/0365

AUTHOR: Vinarov, I. V.; Grinberg, A. M.

TITLE: The kinetics of ion exchange sorption of sirconium and hafnium on KU-2 cationite

SOURCE: Ukrainskiy khimicheskiy zhurnal, v. 30, no. 4, 1964, 359-365

TOPIC TAGS: KU 2 cationite, sirconium sorption, hafnium sorption, kinetics, particle size, mixing intensity, reaction constant, activation energy

ABSTRACT: The kinetics of ion exchange sorption of sirconium and hafnium oxychlorides in dilute (1.5N) HNO₃ on KU-2 cationite in the H form were investigated by determining the dependence of the ion exchange sorption rate on temperature, cation particle size and intensity of mixing. Under the experimental conditions a particle diffusion kinetics system appeared to be in effect. This system is described by the semisepirical equation

Card 1/2

ACCESSION NR: AP4033697

a = sorption, t = time, K and b are constants. The constant K was determined for 25, 35 and 45 C temperatures; the apparent energy of activation for the zirconium was calculated to be 3180 cal/mole, for Hf 4090 cal/mol. Intensity of mixing had negligible effect on the exchange rate. The rate of exchange was inversely proportional to the particle size. Orig. art. has: 5 tables and 5 figures.

ASSOCIATION: Institut obshehey i neorganicheskoy khimii AN SSR, Laboratorii v Odesse (Institute of General and Inorganic Chemistry AN ISSSR, Odessa Laboratory)

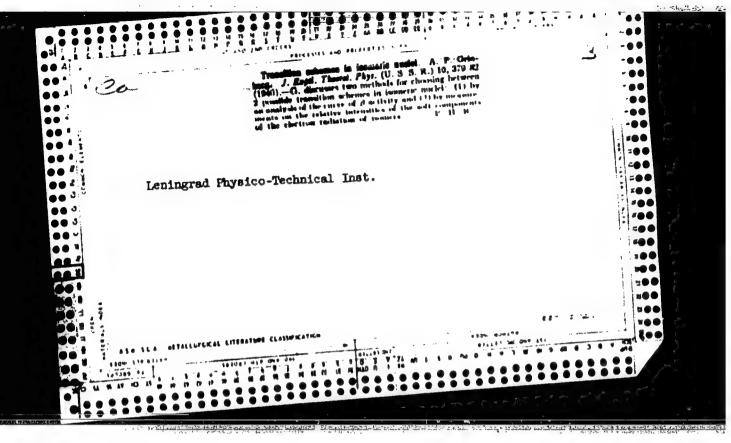
SUBMITTED: Ochay63

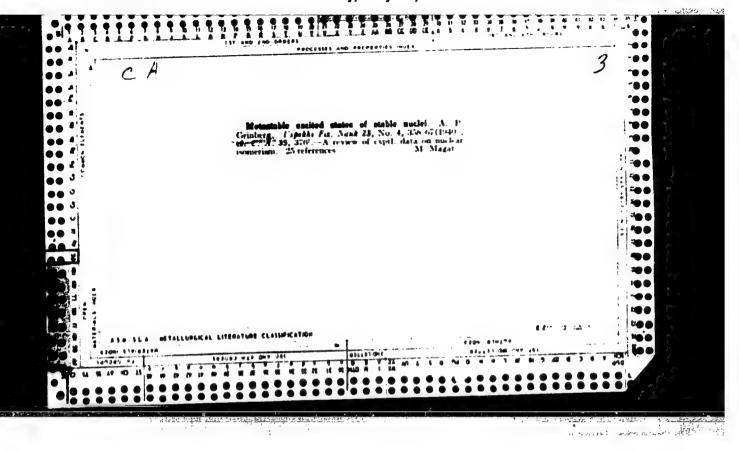
ENCL: CO

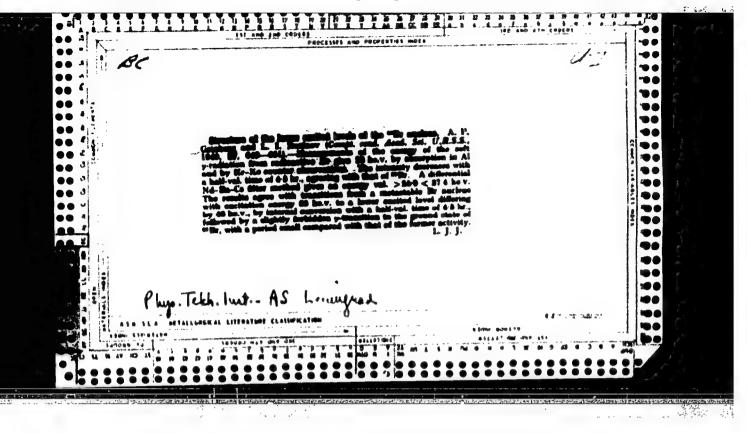
SUB CODE: IC, GC

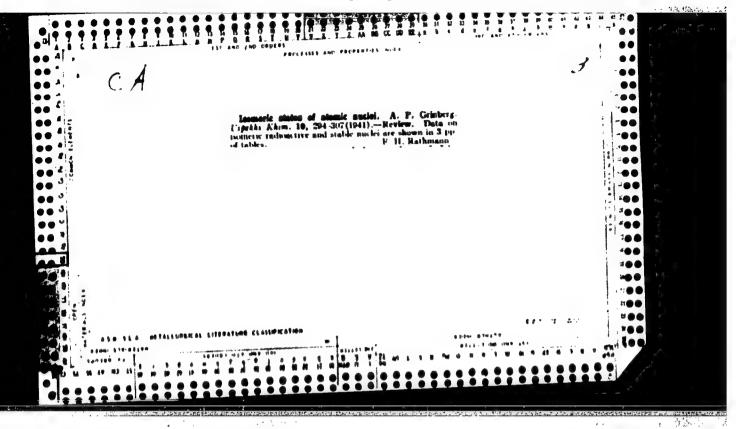
NO REF SOV: COO3

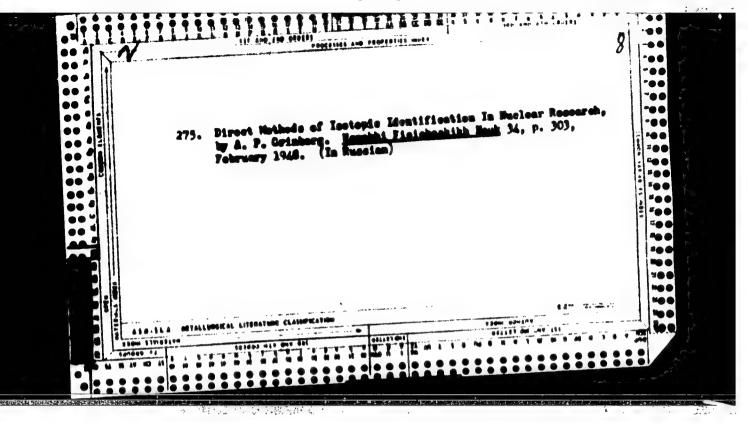
OTHER: Oll

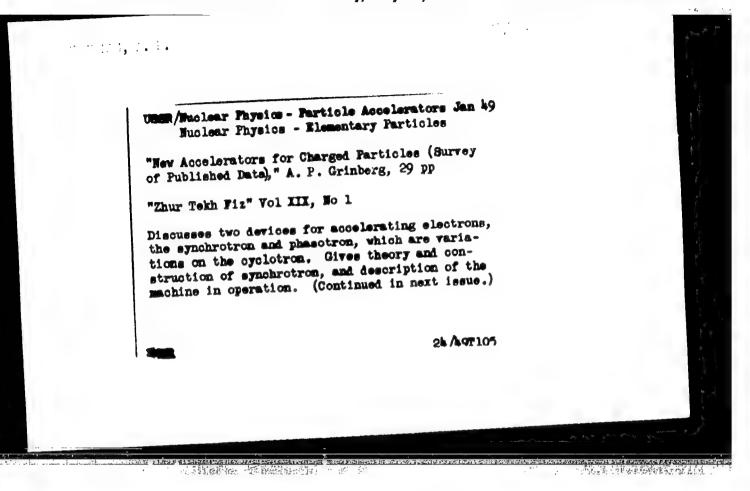






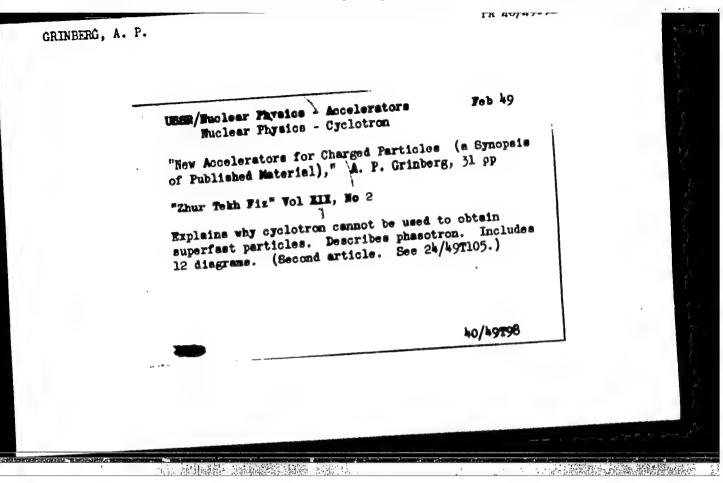






"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683



GRINBERG, A. P.

Aut ors Grinberg, A. P.

Title: Various methods pertaining to the accelleration of charged particles. (Ketody unkorcniia sariashen ykh chas ito.) 385 p.

City: Moscow Publisher: PRESERVE State Printing House of Technical and Theoretical Literature

Date: 1950

Available: Library of Congress

Source: Monthly List of Russian Accessions, v. 3, no. 6, page 523

GRINBERG, A. P.

USSR/Nuclear Physics - Geams Quanta Jul/Aug 53

"Angular Correlation of Gamma Quanta of Nico, Bal34, Cdll4, and Ti48," E. G. Alkhazov, I. Kh. Lemberg and A. P. Grinberg, Phys Tech Inst, Acad Sci USSR

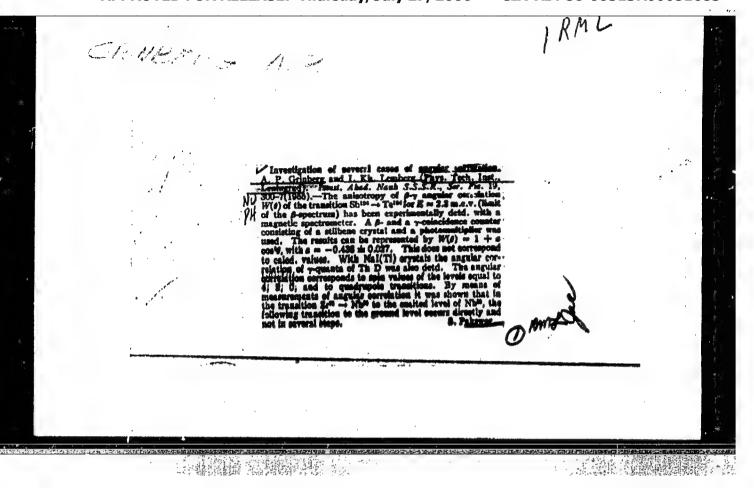
Iz Ak Nauk, Ser Fiz, Vol 17, No 4, pp 487-502

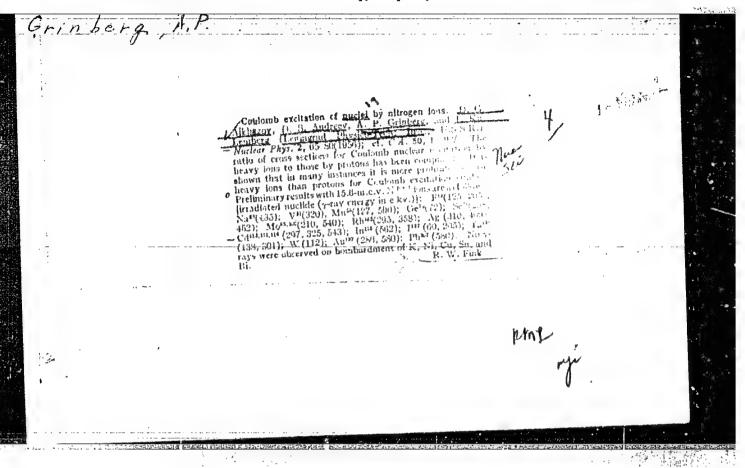
As a method of indirect information on nuclear spins in excited states, the authors applied the measurement of angular correlation of quanta or particles released in cascade. They investigated gamma-gamma correlation between direction of propagation of 2 gamma quanta emitted consecutively by one nucleus. Results confirmed assumption that the spin of first excited level of even-even nucleus equals 2. Rec 16 Jul 53.

272T48

"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683





ALEHAZOV, D.G.; ANDEYEV, D.S.; CRIMBERG, A.P.; IEMBERG, I.Kh.

Study of the Coulomb excitation of mulei by means of nitrogen ions.

IEV.AB SSSR.Ser.fis. 20 no.12:1365-1376 D 156. (MERA 10:3)

1. Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR. (Euclei, Atomic) (Spectrum, Atomic)

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1227
AUTHOR GRINBERG, A.P., LEMBERG, I.CH.

TITLE On COULOMB'S Interaction of Nuclei with Heavy Ions.

PERIODICAL Zurn. eksp. i teor. fis, 30, 807-808 (1956)

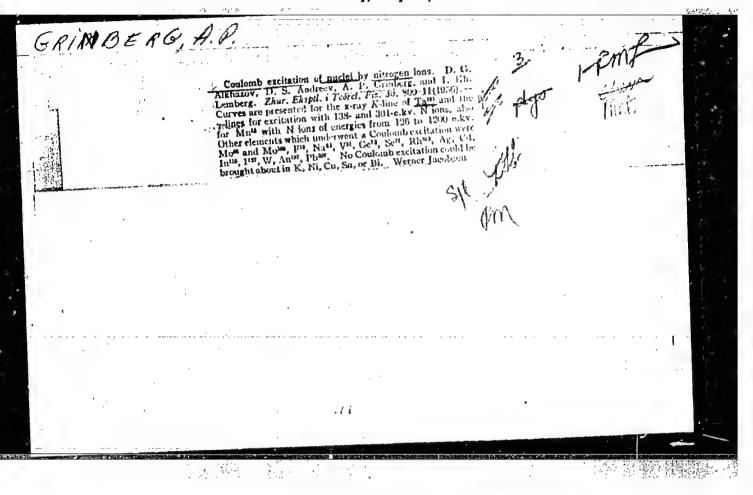
Publ. 4 / 1956 reviewed 8 / 1956

The energy of the bombarding particle may be considerably increased also without excitation of nuclear reactions for COULOMB'S excitation if accelerated heavy ions are used instead of protons or a-particles. Here the cross section σ_h of the COULOMB excitation of a nucleus by heavy ions is estimated. Instead of σ_h it is easier to compute (σ_h/σ_p) as a function of $\int_{p}^{p} = 0.1575z_1z_2 \sqrt{\mu_p}. ((E_p - \Delta E)^{-1/2} - E_p^{1/2}).$ Here the index p refers to protons, and z_1 and z_2 denote the number of protons in the bembarding nucleus, i.e. in the target nucleus, μ_p is the mass of the proton expressed in nuclear units of measure. The index h refers to the heavy bombarding particle. We find $\sigma_h/\sigma_p = \mu_h(E_h - \Delta E)f_2(f_p)/\mu_p(E_p - \Delta E)f_2(f_p)$, and from the corresponding diagram the following conclusions may be drawn: σ_h/σ_p decreases with diminishing E_p , and, if k is given it is largest with $f_p \rightarrow 0$, i.e. if E_p is large, and at $0 < f_p < 1$ it is considerably larger than 1; the values of σ_h/σ_p increase with growing k and particularly with $f_p \rightarrow 0$.

Žurn.eksp.i teor.fis. 30, 807-808 (1956) CARD 2 / 2 PA - 1227 In medium-sized syclotrons it is possible to accelerate nitrogen icas with a treble charge from 10 to 30 MeV. On the occasion of the excitation of the first and second excited levels of Ta 181 the values 75 and 50 respectively are found for σ_h/σ_p . On the occasion of the experimental investigation of COULOMB interaction thick targets are frequently used in order to obtain an increased yield of p-quanta. For the ratio of the yields of p-radiation as a result of COULOMB excitation it applies that $\sigma_{p}(E)dE/(dE/dx)_{p}$, if an equal number of $\sigma_{h}(E) dE/(dE/dx)_{h}/$ protons and heavy ions impinges upon the target. On the occasion of the excitation of the first level of the Ta 181 nucleus by nitrogen ions with E = 14,5 MeV this formula results in $Q_h/Q_p=12$. Thus, though Q_h/Q_p is considerably smaller than $\sigma_{\rm h}/\sigma_{\rm p}$ if thick targets are used, it nevertheless remains larger than 1. On the occasion of the passing of charged particles through matter a characteristic X-ray radiation occurs, and in some cases the energy of the X-ray K quanta is near the energy of the J quanta emitted by COULOMB'S excitation. In the case of thick Tu-targets the ratio (number of X-ray) -quanta occurring as a result of the ionization of tantalum atoms by inciding particles/ number of 137 keV -quanta occurring on the occasion of the employment of nitrogen ions with 15.6 MeV) is 15 times as great as in the case of the employment of 2,1 INSTITUTION: Leningrad Physical-Technical Institution of the Academy of Science MeV protons. in the USSR

"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683



"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051683

ALKHASOV, D.G., ANDREYEV, D.S., GAL'PERIN, L.R., GRINDREIG, A.F., GUSINGKIY, G.M., LEMBERG, Y.Kh., and YEROKHINA, K.I.

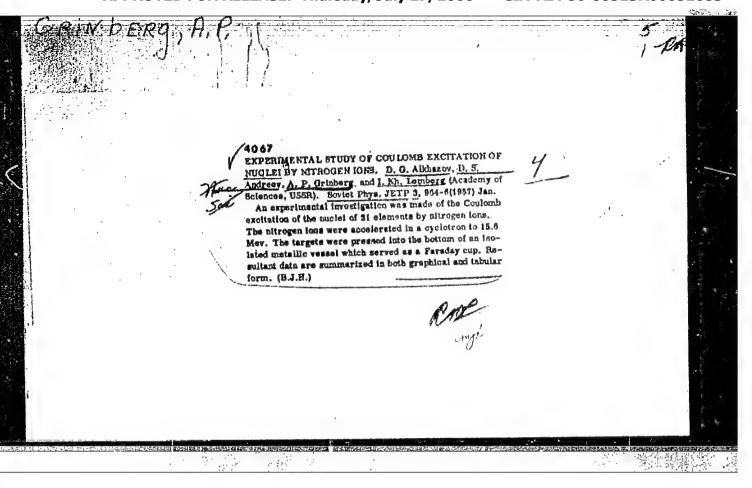
Physical Technical Inst. Acad. Sci. USSR

"Coulomb Excitation of Ruclei (review lecture)

paper submitted at the A-U Conf. on Ruclear Reactions in Low and Medium Energy Physics, Moscow, 19-27 Nov 57.

"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683



sov/56-3**5-**4-46,52

24(3) AUTHORS: Alkhazov, D. G., Grinberg, A. P., Gusinskiy, G. H., Yerokhina, K. I., Lemberg, I. Kh.

TITLE:

The Coulomb Excitation of Aluminum (Kulonovakoye vozbuzhdeniye

alyuminiya)

PERIODICAL:

Zhurnal eksperimental noy i teoreticheskoy fiziki, 1958,

Vol 35, Nr 4, pp 1055-1056 (USSR)

ABSTRACT:

The authors investigated the Coulomb (Kulon) excitation of Al27-nuclei by means of heavy ions which were accelerated in a cyclotron. The ions concerned were 15.9 MeV triplecharged nitrogen ions and triple-charged 18.1 MeV oxygen ions. The y-radiation occurring during the bombardment of the aluminum was investigated by means of a scintillation-7-spectrometer with a NaJ(Tl crystal. The investigation method employed and calculation of the values B(E2), i.e. of the reduced probability of a quadrupole transition of a nucleus from the ground state to an excited state has already been described in earlier papers. A diagram shows the y-radiation spectrum which was produced by a Coulomb excitation of aluminum by

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The Coulomb Excitation of Aluminum

SOV/56-35-4-46/52

nitrogen ions. Two lines with E = 0.84 and with 1.01 MeV respectively are observed. The relative intensity of the γ-cascade transition 0.84 + 0.17 MeV amounts to not more than 4% of the direct transition to the ground level. An attempt to excite the two aforementioned Al27 levels by means of nitrogen ions (which were accelerated to 25 MeV) was without success because of the sharp increase of the γ-radiation background (which is due to nuclear reactions). The results obtained when using nitrogen- and oxygen-ions agree well with one another. The values of B(E2 for the levels with AE = 0.84 and 1.01 MeV amount to 0.0019 and 0.0031e 2 .10 $^{-48}$ cm 4 respectively. The partial lives of the levels with ΔE = 1.01 MeV and ΔE = 0.84 MeV amount to 1.7.10⁻¹¹ sec and 3.7.10⁻¹¹ sec respectively. There are 1 figure and 6 references, 2 of which are Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR (Leningrad Physico-Technical Institute of the Academy of Sciences USSR)

Card 2/3

sov, '56-35-4-47/52 Gusinskiy, G. M., Alkhazov, D. G., Grinberg, A. P., Yerokhina, K. I., Lemberg, I. Kh. 21(8) AUTHORS: The Lifetim of the First Excited Level of Mg²⁴ (Vremya zhizni pervogo vozbuzhdennogo urovnva Mg²⁴) pervogo vozbuzhdennogo urovnya Mg TITLE: Zhurnal eksperimental noy i teoreticheskoy fiziki, 1959, PERIODICAL: Vol 35, Nr 4, pp 1056-1058 (USSR) The investigation of the Coulomb (Kulon) excitation of the nuclear level makes it possible to calculate its life. For ABSTRACT: the transition of even-even nuclei from the ground state with spin 0 to the first excited level with spin 2 it holds $1/\tau = 2.46 \cdot 10^{-3} (\Delta E)^{5} B(E2)^{1}$. that Here ΔE denotes the level energy in keV, and B(E2) the reduced probability of the aforementioned transition. Here e2.10-48 cm4 serves as a measuring unit of B(E2). In the present paper triple-charged nitrogen- and oxygen ions with energies of 15.9 and 18.1 MeV respectively, and also quadruplecharged nitrogen ions with 25.6 and 36 MeV are used. Investi-Card 1/2

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the
The Lifetime of/ First Excited Level of Mg²⁴ SOV/56-35-4-47/52

gations are rendered difficult by a permanent parasitic line of 1.37 MoV (which is thus in agreement with the line under investigation). A diagram shows the spectrum obtained by the bombardment of natural magnesium with 15.9 MeV nitrogen ions. According to estimates made by the authors, the maximum error committed when determining the area of the parasitic peak amounts to not more than $\pm 5\%$ of the peak under investigation. The mean value of B(E2)†, which was determined by 6 different experiments, amounts to 0.054 e²·10⁻⁴⁸ cm⁴, from which lt follows that $\tau = (1.5 \pm 0.4) \cdot 10^{-12}$ sec. In conclusion, a short report is given on results obtained by other authors. There are 1 figure and 3 references, 2 of which are Soviet.

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk GSSR

(Leningrad Physico-Technical Institute of the Academy of

Sciences USSR)

SUBMITTED: July 9, 1958

Card 2/2

sov/56-35-6-2/44

24(5) AUTHORS: Alkhazov, D. G., Grinberg, A. P., Gusinskiy, G. M., Yerokhina, K.I.,

Lemberg, I. Kh.

TTTLE:

Coulomb Excitation of High-Energy Nuclear Levels in Even Tungsten Isotopes (Kulonovskoye vozbuzhdeniye yadernykh urovney a bol'shoy energiyey v chetnykh izotopakh vol'frama)

PERIODICAL:

Zhurnal eksperimental noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 6, pp 1325-1334 (USSR)

ABSTRACT:

In their introduction the authors deal in detail with investigations carried out in this field by other authors (Refs 1-3, 6-11). The authors themselves already determined even-even nuclei with 15 Mev a particles and excited states with energies of up to 1.5 Kev (Refs 4,5). Peker (Ref 11) set up schemes of excited levels on the basis of a generalized nuclear model for W and W according to data obtained from references 9 and 10. Herefrom it follows that the levels of W^{184} with $\Delta E = 900$ kev and that of W^{186} with $\Delta E = 750$ kev are vibration levels (2⁺). In the present paper the authors used the following energies for their investigations for the excitation of a-particles: 8.3, 10.2, 13.1 and 14.5 Mev. The particles were accelerated in a cyclotron. The target substance

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sov/56-35-6-2/44

Coulomb Excitation of High-Energy Nuclear Levels in Even Tungsten Isotopes

consisted of natural tungsten and of samples (lead bases) which were enriched with W 182 , W 184 , and W 186 . The results obtained by the investigations are shown by a number of diagrams and tables. Figure 1 shows the spectrum emitted by natural tungsten at Coulomb excitations ($E_{oc} = 14.5 \text{ MeV}$), and figure 2 shows the same for the excitations ($E_{oc} = 14.5 \text{ MeV}$), and figure 2 shows the same for the last high-energy lines. The extrema of the curves correspond to the following lines: 511, 610, 730, 900, 1120, and 1220 kev. The line $\Delta E = 790 \text{ kev}$ does not occur here, but the spectrum for line $\Delta E = 790 \text{ kev}$ does not occur here, but the same for $\Delta E = 790 \text{ kev}$ shows weak but distinct maxima for $\Delta E = 790 \text{ kev}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ and 900 kev; figure 4 shows the same for W $\Delta E = 14.5 \text{ MeV}$ an

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051683

SOV/56-35-6-2/44

Coulomb Excitation of High-Energy Nuclear Levels in Even Tungsten Isotopes

L. K. Peker, and L. A. Sliv for discussing results.— There are 5 figures, 2 tables, and 15 references, 5 of which are Soviet.

ASSOCIATION:

Leningradskiy fiziko-tekhnicheskiy institut Akademii nauk SSSR

(Leningrad Physico-Technical Institute of the Academy of Sciences,

ÚSSR)

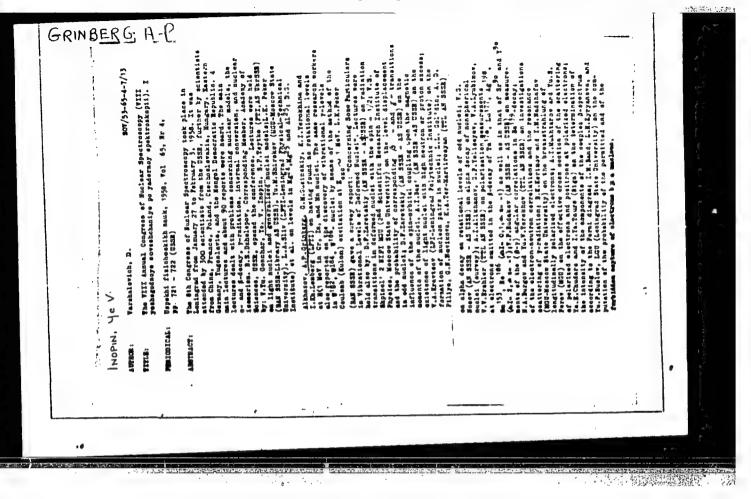
SUBMITTED:

May 26, 1958

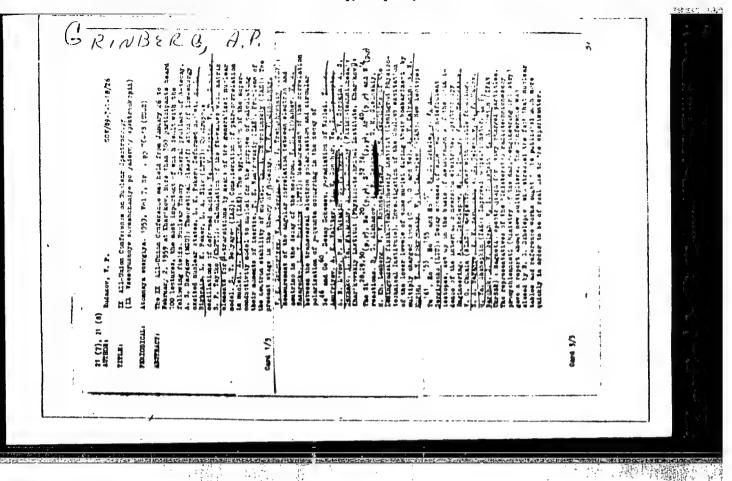
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"APPROVED FOR RELEASE: Thursday, July 27, 2000

CIA-RDP86-00513R00051683



"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051683



SOV/48-23-2-11/20

Alkhazov, D. G., Grinberg, A. P., Yerokhina, K. I., Lemberg, I.Kh. 21(7) AUTHORS:

TITLE:

Coulomb Excitation of Nuclear Levels in Spherical Even-even Nuclei (Kulonovskoye vozbuzhdeniye yadernykh urovney v sferi-

cheskikh chetno-chetnykh yadrakh)

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,

Vol 23, Nr 2, pp 223-224 (USSR)

ABSTRACT:

The present paper contains results obtained in the investigation of Coulomb excitation of the first level of Si, Ti, Cr; Pe, Ni and Zr isotopes. The targets enriched with such isotopes were bombarded with triple- and quadruple-charged nitrogen ions which had been accelerated to 15.9-35 Mev in the cyclotron. The experimental procedure was given in a previous paper (Refs 1, 2). The authors calculated the stopping power dE/dex of the investigated elements for N by recalculating the range-energy curves for α-particles according to Longchamp (Ref 3). The stopping power was also determined from the range-energy curve for N ions in Ni according to data on investigation of stopping power in Ni. The measurement results are listed in a table which also contains the probability of transitions and the life-time τ of the excited states as determined by the method of Coulomb excitation. In paper (Bef8)

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CIA-RDP86-00513R000516830 APPROVED FOR RELEASE: Thursday, July 27, 2000

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SOV/48-23-2-11/20 Coulomb Excitation of Nuclear Levels in Spherical Even-even Nuclei

the authors assumed a systematic increase of value τ determined by Coulomb method with respect to the values τ determined by resonance scattering. This assumption does not agree with the results obtained here. There are 1 table and 9 references, 3 of which are Soviet.

Card 2/2

507/48-23-7-22/31 Grinberg, A. P., Lemberg, I. Kh. 24 (5), 21 (7) Specific Losses of Energy in the Stopping of Heavy Ions in AUTHORS: Different Substances (Udel'nyye poteri energii pri tormoshenii tyazhelykh ionov v razlichnykh veshchestvakh) TITLE: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 7, pp 887-893 (USSR) PERIODICAL: In the investigation of Coulomb excitations of the nuclei, life times of the excited levels of the nuclei in the range of ABSTRACT: 10-12 seconds and less are determined. In using positrons and a-particles, this is only possible for such nuclei the nuclearcharge number of which is higher than 50. Heavy ions must be used to reduce the influence of the 7-background of the nuclear reactions for nuclei with nuclear-charge numbers under 50. In this case, it is necessary for the calculation of life times of excited levels to know the specific losses of energy in the stopping of the ione of C, N, etc in different substances. As the known data are considered inaccurate, experiments were carried out with ions of the isotopes N¹⁴, C¹², O¹⁶ and Ne cyclotron of the Laboratory of the FTI for determining the Card 1/3

Specific Losses of Energy in the Stopping of Heavy Ions in Different Substances SOV/48-23-7-22/31

Coulomb excitation of the nuclei of heavy ions. Three methods are indicated for calculating the amount of the specific less of energy. The first method was developed by Longohamp. It is based on a number of theoretical investigations, and the mean charge is calculated by means of the statistic atom model by Thomas-Fermi. The second method is called the proton method; it is based on the known formula by Bethe-Bloch. The third method is the method of the mean ion charge. Here, the influence of the monovalent ions is neglected. In figure 1, the curve found experimentally for the range-energy of ions of the isotope R14 in stopping in nickel is compared with the curve calculated by the method of Longohamp. In figure 2, the specific loss of energy experimentally determined for the ions of the same isotope is compared with the specific losses calculated according to Longohamp and by the third method. A good agreement is to be seen in the first diagram, sometimes considerable deviations are to be seen in the second diagram. Besides, three diagrams representing the mean values of the specific energy loss of the ions of the isotopes N¹⁴, C¹² and O¹⁶ in the energy

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Specific Losses of Energy in the Stopping of Heavy Ions in Different Substances

507/48-23-7-22/31

interval of 15-25 Mev in dependence on the nuclear-charge number of the stopping media, are shown. Finally, the specific energy loss of the ions of Ne²⁰ is investigated, and it is ascertained that, on account of the extensive experimental results, the calculation of the life of the Coulomb-excited states does not show a big error. There are 6 figures and 9 references, 2 of which are Soviet.

ASSOCIATION:

Fiziko-tekhnicheskiy institut Akademii nauk SSSR (Physico-technical Institute of the Academy of Sciences, USSR)

Card 3/3

S/048/59/023/012/005/009 B006/B060

24.6520

AUTHORS:

Alkhazov, D. G., Grinberg, A. P., Gusinskiy, G. M.

Lemberg, I. Kh.

TITLE:

Nuclear Reactions of Multicharged Ions With Carbon and Oxygen, and Their Influence on the Investigation of the

Coulomb Excitation of Nuclear Levels

PERIODICAL:

Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959,

Vol. 23, No. 12, pp. 1465 - 1472

TEXT: The investigation of the ion induced excitation of high-energy nuclear levels encounters great difficulties due to intensive γ -background. The attempt of exciting high-energy nuclear tin levels by nitrogen ions (25 Mev) revealed a γ -background exceeding considerably the expected γ -emission due to Coulomb excitation. In order to clarify origin and background character, the authors investigated γ -spectra of different elements, of their compounds and of isotopes occurring with their bombardment by C^{12} -, N^{14} -, O^{16} -, Ne^{20} -, and Ne^{22} -ions. The γ -recording was carried out by

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Nuclear Reactions of Multicharged Ions With S/048/59/023/012/005/009 Carbon and Oxygen, and Their Influence on the B006/B060 Investigation of the Coulomb Excitation of Nuclear Levels

means of a scintillation spectrometer joined with a multiplier (FEU-11), and a fifty-channel pulse analyzer. The distance between target and the front of the NaJ(T1)-crystal was 2.7 mm. The 0.1 - 2 Mev region of the y-spectra was investigated, and the background was determined for the following bombarding ion energies: $C^{12}(13.6 \text{ MeV})$, $N^{14}(11-40 \text{ MeV})$, $0^{16}(18.1 \text{ MeV})$, $N^{20}(23.1 - 27.8 \text{ MeV})$, and $N^{20}(25.8 \text{ MeV})$. The ions were accelerated in the cyclotron of LFTI (Leningrad Physicotechnical Institute). The most accurate y-background spectrum investigation was conducted with the bombardment with nitrogen ions, proceeding from $E_N = 15.9 \text{ MeV}$. In Fig. 1 the y-spectra of a graphite and a nickel target are given; they are very similar. The y-background lines 0.35, 0.51 (very weak), 0.59, and 1.37 Mev were observed. For $E_N = 11.25 \text{ MeV}$ the above two first lines were no more observable (for graphite), the two last ones were weaker, and the continuous background diminished. An increase in E_N caused intensification. For silicon bombardment with $E_N = 25 \text{ MeV}$ the background

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Nuclear Reactions of Multicharged Ions With \$5/048/59/023/012/005/009 Carbon and Oxygen, and Their Influence on the B006/B060 Investigation of the Coulomb Excitation of Nuclear Levels

line 1.63 Mev, for aluminum bombardment the lines 0.69 and 0.81 Mev were observed. Fig. 2 shows the γ -spectrum with Ni bombardment by N to 1.35 Mev). Fig. 3 applies to the same for vanadium bombardment. In both spectra the 1.37 Mev background line is missing, nickel exhibits the intensive 1.19 Mev line, vanadium a 0.92 Mev line. The results are discussed and some further ones are given. For targets containing oxygen the background lines 0.51 and 1.78 Mev as well as increased intensity of the 0.59 and 1.37 Mev were observed under bombardment with nitrogen ions. When E_N is increased from 15 to 40 Mev the intensity of the 1.78 Mev line increases much faster than that of the 1.37 Mev line. Next, results of γ -background investigations when bombarding with other ions are given:

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Nuclear Reactions of Multicharged Ions With S/048/59/023/012/005/009 Carbon and Oxygen, and Their Influence on the B006/B060 Investigation of the Coulomb Excitation of Nuclear Levels

	Ey (Mev) for Carbon	reaction with Oxygen
c ¹² (13.6 Mey)	0.44, 0.51, 1.63;	0.51, ~1.0, 1.37
N ¹⁴ (15.9-40 Mev)	0.35, 0.51, 0.59, 1.37;	0.51, 0.59, ~1, 1.37, 1.78
0 ¹⁶ (18.1 Mev)		
Ne ²⁰ (23.1 Mev)		0.69
Ne ²² (25.8 Mev)		

Full particulars are given of the results; the attempt is further made of explaining the various occurring lines by reactions between ion and bombarded nucleus. For example: γ -background line 1.63 Mev: $C + C = Ne^{20} + \alpha + 11.4$ Mev (the first Ne^{20} level has the energy of 1.63 Mev). 1.37 Mev: $N + C = Mg^{24} + \alpha$, or $N + C = Na^{24} + 2p$, where Na^{24} decays to the first excited Mg^{24} level by β -decay ($\Delta E = 1.37$ Mev).

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Nuclear Reactions of Multicharged Ions With S/048/59/023/012/005/009 Carbon and Oxygen, and Their Influence on the B006/B060 Investigation of the Coulomb Excitation of Nuclear Levels

0.35 Mev: N + C = Ne²¹ + α + p. 0.59 Mev: N + C = Na²² + α . Some lines may be explained by different reactions as for instance: 1.78 Mev: N + O = Al²⁸ + 2p; N + O = Si²⁸ + n + p; N + O = P²⁸ + 2n. Finally the investigation possibilities of Coulomb excitation of nuclear levels are discussed for different experimental conditions. A team under the supervision of A. B. Girshin participated in this work. There are 3 figures, 1 table, and 10 references: 8 Soviet.

Card 5/5

21(8) AUTHORS:

Alkhazov, D. G., Grinberg, A. P., 30V/56-36-1-50/62

Lemberg, I. Kh., Rozhdestvenskiy, V. V.

TITLE:

The Coulomb Excitation of Neon (Kulonovskoye vozbuzhdeniye

neona)

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,

Vol 36, Nr 1, pp 322-324 (USSR)

ABSTRACT:

Such an excitation of levels can be observed not only in the target nucleus but also in the bombarding nucleus, if the latter has a sufficiently high excitation cross section. In the case of most of the work hitherto carried out in connection with Coulomb (Kulon) excitation the targets were bombarded with protons or of-particles. As, however, the nuclei

 ${\rm H}^1$ and ${\rm H}^4$ have no suitable levels, the above mentioned phenomenon has hitherto not been observed. However, if heavy ions are used in some cases, an excitation of the nuclear levels may be found in the bombarding particles. The authors

investigated the Coulomb excitation of the nuclei

Ne²⁰ and Ne²², in which case the neon nuclei were accelerated.

Card 1/4 The energy of the first excited levels of these nuclei

The Coulomb Excitation of Neon

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amounts to 1.63 and 1.275 Mev. The cyclotron was adjusted to the acceleration of one or the other ions by variation of the magnetic field strength with unvaried frequency of the accelerating cyclotron field. As targets 3e, B, C, Mg, Al, Si, Mg²⁴0, Mg²⁵0, Mg²⁶0, and ScO were used. According to the authors' calculations the yield of the y-radiation connected with the Coulomb excitation of Ne²⁰ or Ne²² must decrease considerably with an increase of the atomic number of the target nuclei. Therefore, only targets with light nuclei were used for the here discussed experiments. The Y-radiation produced by bombarding various targets with neon-ions was recorded by means of a % -spectrometer with NaJ(T1)-crystal. Two diagrams show the spectra of Y-rays which were emitted in the case of the Coulomb excitation of the level $\Delta E = 1.63$ Mev (and $\Delta E = 1.275$ Mev respectively) during the bombardment of aluminum with Ne²⁰-ions (or by Ne²²-ions respectively). Similar spectra, which indicate excitation of the aforementioned neon nuclei, were found also in connection with the bombarding of the remaining nuclei, with the

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exception of boron and beryllium. In these two exceptional cases the peak with E = 1.63 MeV was not observed during the bombardment with Ne²⁰-ions because of the very strong y-background. In the case of a bombardment of these targets with Ne²²-ions a distinctly marked peak with E = 1.275 MeV is observed. The mean values of B(E2) are 0.041 e².10⁻⁴⁸ cm⁴ for the level with Δ E = 1.63 MeV of Ne²⁰ and 0.025 e².10⁻⁴⁸ cm⁴ for the level with Δ E = 1.275 MeV of Ne²⁰. The mean life τ of these states amounts to 8.6.10⁻¹ for and 4.8.1 MeV of the working group A. B. Girshin, who was responsible for the undisturbed operation of the cyclotron. There are 2 figures and 7 references, 2 of which are Soviet.

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Coulomb Excitation of Odd A-Nuclei by Heavy Ions

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ABSTRACT:

High-lying levels in some light nuclei (Al²⁷, Sc⁴⁵, V⁵¹, Nb⁹³), which because of background could not previously be observed when protons or α -particles were used, have now been excited by using "heavy" ions as bombarding particles. The "heavy" ions were N¹⁴; 3+, N¹⁴; 4+, O¹⁶; 3+, Ne²⁰; 4+, and Ne²²; 4+, at energy levels from 16 to 36 mev. The γ-radiation formed during the bombardment of the target with ions was registered with the aid of a scintillation spectrometer (cf. D. G. Alkhazov, D. S. Andreev, K. I. Erokhina, I. Kh. Lemberg, Zhur. eksp. i teoret. fiz., 33, 1347, 1958). The calibration of the

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spectrograph was done according to the γ -lines of Hg²⁰³ (279.5 kev), Cs¹³⁷(661 kev), Zn⁶⁵(1,100 kev), and Co⁶⁰(1,170 and 1,332 kev). The reduced probability of the excitation was calculated with the aid of the following equation:

 $B(E2) \uparrow = 0.555 \cdot 10^{-10} \frac{Z_L^2 S_L(1 + z_\tau) M Z_\tau^2 dE - dex}{\int_0^{\infty} \int_0^{\infty} (E - \Delta E) f_2(\xi) dE} \bigg\}^{-1} . \quad (1)$

(where Z, is the ion charge in the beam sutside the cyclotron; Ω_t is the total coefficient of internal conversion; S_t is the number of γ -quanta registered at the peak of the total energy; M is the molecular weight of the substance comprising the target; Z_2 is the nuclear charge of the atom under investigation (i.e., in the target); dE/df x are the specific losses of the ion energy in the target (in mev/(mg//cm²)); η is the relative content of a given isotope

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in the element under investigation; \mathcal{E}_{Γ} is the ratio of the number of γ -quanta registered at the peak of the total energy to the total number of γ -quanta falling on NaI(T1) crystal; ω is the relative solid angle; A γ is the portion of γ -quanta passing through the target and absorbed by the medium between the target and the crystal (0.3 mm Cu, 1.3 mm Al, 1 mm MgO, 0.05 mm Pb, and 0.05 mm mica); μ is the reduced mass; n is the number of atoms of the element under investigation in the target; E is the collision energy; Δ E is the energy of the excited level; $f_2(\xi)$ is function of coulomb excitation; ξ is parameter that is defined by the relation

$$\xi = 0.1575 \ z_1 z_2 \sqrt{\mu} (1/\sqrt{E - \Delta E} - 1/\sqrt{E});$$

and \mathbf{Z}_1 is the nuclear charge of the bombarding particle). The analysis showed that some of the γ -lines observed

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